

Remarks

By way of the foregoing amendments, claims 35 and 40 have been amended to add a period at the end of the claim, and claims 17-21, 26, 31 and 33 have been amended for the reasons discussed below.

Claims 17-40 have been rejected as being unpatentable over Biswas et al. (US 5,802,905), Visser et al (US 5,027,634), EP 696707, and/or Bessey et al. (US 4,825,677). The Examiner's remarks in support of the rejections have been carefully considered and it appears the Examiner may not appreciate a fundamental difference between the claimed invention and the teachings of the prior art. This is reflected by the Examiner's comment in the second full paragraph on page 3, that the alleged combination of Biswas et al. and Visser et al. "is operable for stationary extrusion blocks". Thus, the Examiner appears be giving no patentable weight to the last clause of claim 1, i.e. "the groups of spray nozzles are sequentially switched off while the block is held axially stationary relative to the spray nozzles. The Examiner seems to be implying that this is nothing more than a statement of intended use, which normally would not be afforded any patentable weight. Such feature, however, is a requirement of the claims and cannot be ignored. Moreover, claims 17-21, 26, 31 and 33 have been amended to remove any issue in this regard.

In contrast to applicant's device as set forth in the claims, both Biswas et al. and Visser et al. describe a cooling device in which the billet is moved during the cooling, namely horizontally in Visser et al. and vertically in Biswas et al. In both cases the desired temperature gradient is created by varying and controlling the axial speed of the billet when moving the billet through the cooling device. This means that during the cooling process the billet is moved relatively to the spray rings which can also be controlled during the cooling process.

In particular, Biswas et al. teaches that the pressure, the temperature and the duration of cooling can be controlled separately for each cooling ring during the cooling process and hence while the billet is being moved relative to the cooling rings.

In Visser et al. the desired temperature gradient is created only by setting different residual times of a certain billet surface zone under cooling due to the change of the relative velocity.

Thus, according to both Biswas et al. and Visser et al., the cooling intensity provided by the cooling device is obtained mainly by the motion of the billet through the cooling device which has to be controlled accordingly. Therefore, two different control means are needed, namely one for the relative motion of the billet and the other for the operation of the cooling system.

In applicant's device there is no relative motion between the cooling system and the billet during the cooling process. With the exception of the control of the supply of cooling fluid, no additional control is necessary; this be in stark contrast to the teachings of Biswas et al. and Visser et al. As set forth in the claims, the groups of spray nozzles are sequentially switched off while the block is held axially stationary relative to the spray nozzles. The combination advanced by the Examiner does not disclose or suggest this feature of the claims. Not only does cooling operate in a completely different manner, the elimination of the need to control movement of the billet during the cooling process allows for a simpler and more reliable device.

Biswas et al. and Visser et al. offer no teaching or even hint of operating with a stationary billet. Thus, the combination advanced by the Examiner, even if permissible, would not yield a device as set forth in the claims.

Regarding the Examiner's allegation that the device taught by a combination of Biswas et al. and Visser et al. "is operable for stationary billets", the fact remains that there is absolutely no teaching of or motivation to provide "a process control system for causing a block to be held axially stationary relative to the spray nozzles and for sequentially switching off the groups of spray nozzles while the block is held axially stationary relative to the spray nozzles" or "a process control system for sequentially switching off the groups of spray nozzles while the block is held axially stationary relative to the spray nozzles, thereby to provide the temperature taper." Moreover, an effort to operate such system in this manner would alter the systems Biswas et al. and Visser et al. such that they would no longer function in their intended manners.


For at least the foregoing reasons, the claims are submitted as being allowable over Biswas et al. and Visser et al.

Conclusion

In view of the foregoing, request is made for timely issuance of a notice of allowance. If the Examiner disagrees, he is requested to contact the undersigned to arrange an interview during which the issues can be discussed and hopefully resolved.

Respectfully submitted,

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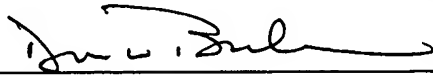
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